BROWNFIELD REDEVELOPMENT ASSESSMENT REPORT

FOR

JEFFERSON RIOPELLE-JEFFERSON CHENE

DETROIT, MICHIGAN

BROWNFIELD REDEVELOPMENT ASSESSMENT REPORT

FOR

JEFFERSON/RIOPELLE-JEFFERSON/CHENE
PROPERTIES
DETROIT, MICHIGAN

SEPTEMBER 26, 1996

REPORT PREPARED BY: Nabil Seif DATE: 9/26/96

Nabil Seif
Pre-Remedial Group, Site Management Unit 1

REVIEWED AND APPROVED BY: George Carpenter DATE: 9/26/96

George Carpenter, Ph.D., Chief
Site Management Unit I

Michigan Department of Environmental Quality
Environmental Response Division
Superfund Section
P.O. Box 30426
Lansing, Michigan 48909

EXECUTIVE SUMMARY

On November 28, 1995, Michigan Department of Environmental Quality (MDEQ) Pre-Remedial Group staff collected 25 surficial soil samples and 5 soil boring samples from suspected areas of contamination at the Jefferson/Riopelle-Jefferson/Chene (JRJC) properties in the city of Detroit.

Analysis of the soil and soil boring samples collected from JRJC properties during the Brownfield Redevelopment Assessment (BFRA), detected the presence of benzo (a) pyrene, arsenic, beryllium, lead and manganese. These contaminants of concern were detected at concentrations greater than the Generic Residential Cleanup Criteria of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended (formerly known as the Michigan Environmental Response Act). Because these contaminants were detected at concentrations in excess of the Generic Residential Cleanup criteria of the NREPA, the JRJC properties qualify as facilities under Part 201. However, only lead was detected at concentrations greater than the Generic Industrial Cleanup Criteria of Part 201 of the NREPA.

Based on the concentration of the contaminants in the soils of the properties, there is little potential for exposure to contaminants at the properties under their current or anticipated future use.

Based on the findings of the BFRA investigation and the Michigan Department of Community Health (MDCH) Health Consultation Assessment, the following issues should be addressed before or during the redevelopment of the JRJC properties:

- The presence of lead above the Industrial Cleanup Criteria at the Jefferson/Riopelle property should be confirmed and measures should be taken to prevent workers exposure during property redevelopment.

- Excavation for the construction of any buildings on the properties might expose workers or subsequent occupants to subsurface soils. Therefore, soil samples should be collected and analyzed from borings to the depth of any proposed excavation on the properties before the excavation begins. These results should be compared to the Generic Industrial Cleanup Criteria for Direct Contact to soils to determine whether any exposure risk to site workers could occur.

INTRODUCTION

The MDEQ Pre-Remedial Group was contracted via a cooperative agreement with the U. S. Environmental Protection Agency (EPA) to conduct BFRA as part of the Detroit Brownfields Pilot Project. A brownfield is a property, or a portion thereof, that has actual or perceived contamination and an active potential for redevelopment or reuse. Properties which meet these qualifications have been selected by the city of Detroit to be investigated in the Detroit Brownfields Pilot Project.

BFRAs are intended to provide information on abandoned properties where potential environmental contamination may be acting as an impediment to future redevelopment activities. MDEQ Pre-Remedial Group staff conduct environmental investigations to determine the types and locations of past and present industrial activities, potential environmental migration pathways of concern, types and concentrations of potential contaminants and the need for remedial and/or removal actions on the property.

The MDEQ conducted a BFRA of the JRJC properties in accordance with the cooperative agreement with the EPA. For the purposes of the BFRA, the Jefferson/Riopelle parcel will be referred to as parcel 1 and the Jefferson/Chene parcel as parcel 2. The BFRA included file and information searches, a reconnaissance inspection of the property, and the collection of surficial soil and soil boring samples.

PROPERTY BACKGROUND

Property Description

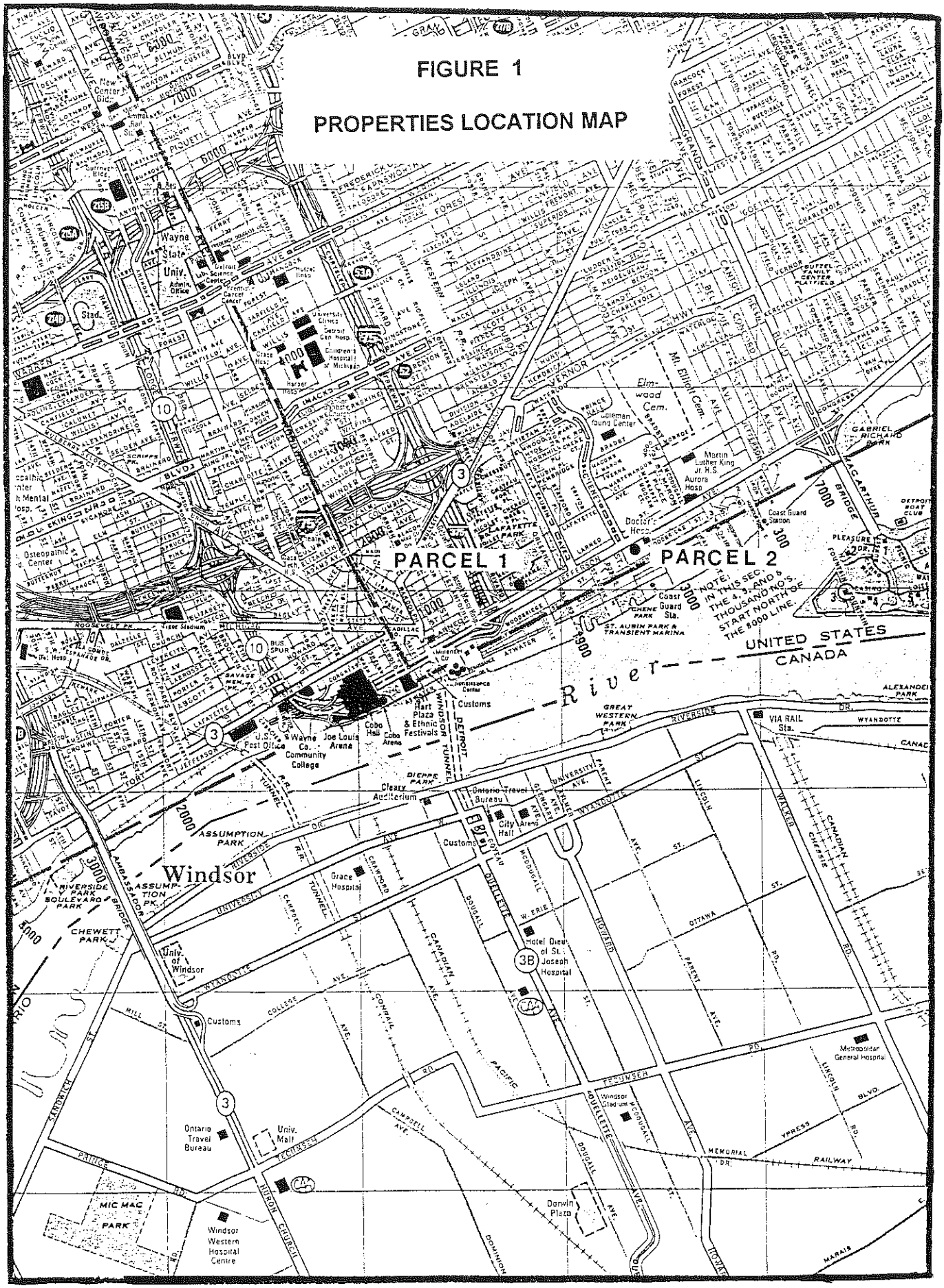
The JRJC properties are located on both sides of East Jefferson Avenue in the near east river front of Detroit, Wayne County. The project area consists of two non-contiguous parcels. Parcel 1 is located on the north side of East Jefferson Avenue, and the south side of East Larned Avenue east of vacated Riopelle Avenue. Parcel 1 is part of the Lafayette Park. Parcel 2 is located on the south side of East Jefferson Avenue east of Chene Street and consists of reversed 'L' shaped parcel that extends from the south side of East Jefferson Avenue to the north side of Franklin Street and west to the northeast corner of Franklin and Chene Streets. See Figure 1 for the Properties Location Map.

Property History

Early Sanborn maps dating back to 1897 show at that time both parcels contained large residential dwellings that fronted on East Jefferson Avenue. In 1897 the northeast corner of Chene and Franklin Streets was the site of the Detroit Gas Company Chene Street Station that contained a

FIGURE 1

PROPERTIES LOCATION MAP



See.....

JEFFERSON CHENE PROPERTY

SITE ASSESSMENT SECTION

200,000 cubic foot "Gasometer" a coal gas storage facility (parcel 2). In about 1916, the "Gasometer" was replaced by a metal working factory that produced unknown products. The factory extended along the east side of Chene from East Jefferson to Franklin. The facility contained a machine shop, tin shop, forge shop and hardening room. The 1922 Sanborn map shows that the current city of Detroit Department of Public Works (DPW) maintenance building had been built, however the original occupant is not known. The 1969 Sanborn map shows that the DPW maintenance building had taken over the northeast corner of Chene and Franklin Streets and a gasoline station occupied the southeast corner of Jefferson and Chene. The DPW facility operated until the late 1970s and was demolished in the mid 1980s.

By 1921, the large dwellings on parcel 1, with the exception of the northwest corner of East Jefferson and Riopelle, had been converted to rooming houses. The building on the northwest corner became two meat shops with a hog pen and a slaughter house in the rear. By 1950, the hog pen and the slaughter house were replaced by a garage and a silver plating shop.

The parcel 1 property was acquired by the city of Detroit in the mid 1950s as a part of the Lafayette Park Urban Project, and the buildings were demolished at about that time.

PROCEDURES AND RESULTS

On November 28, 1995, the investigation team conducted a reconnaissance inspection of the JRJC properties and surrounding area to make observations to aid in characterizing the property. The reconnaissance inspection included a walk-through of the property to determine appropriate health and safety requirements for conducting investigation activities. The team also determined sampling locations during the reconnaissance inspection. Upon completion of the reconnaissance inspection, the investigation team conducted the sampling task.

Reconnaissance Inspection Observations

Parcel 1 is approximately 100,000 square feet and is part of the Lafayette Park Urban Project. The property is covered with grass and several benches were observed on the property. There was no sign of oil or otherwise stained soils. The park is well maintained. Parcel 2 is approximately 145,000 square-feet and is currently a vacant lot covered with gravel. There was no sign of oil stained soils, however, small piles of sliced potatoes and other vegetable matter were found on the center of the parcel. There is a Shell Gas Station on the northwest corner of the parcel. See Figures 2 and 3 for the Properties Features Maps. Photographs of the JRJC properties taken during the BFRA are provided in Appendix A.

As part of the BFRA, the MDCH accompanied the investigation team during the reconnaissance inspection and performed a Health Consultation Assessment. The results of the MDCH assessment can be found in the Health Consultation of the JRJC properties in Appendix B.

FIGURE 2

PROPERTY FEATURES
PARCEL 1

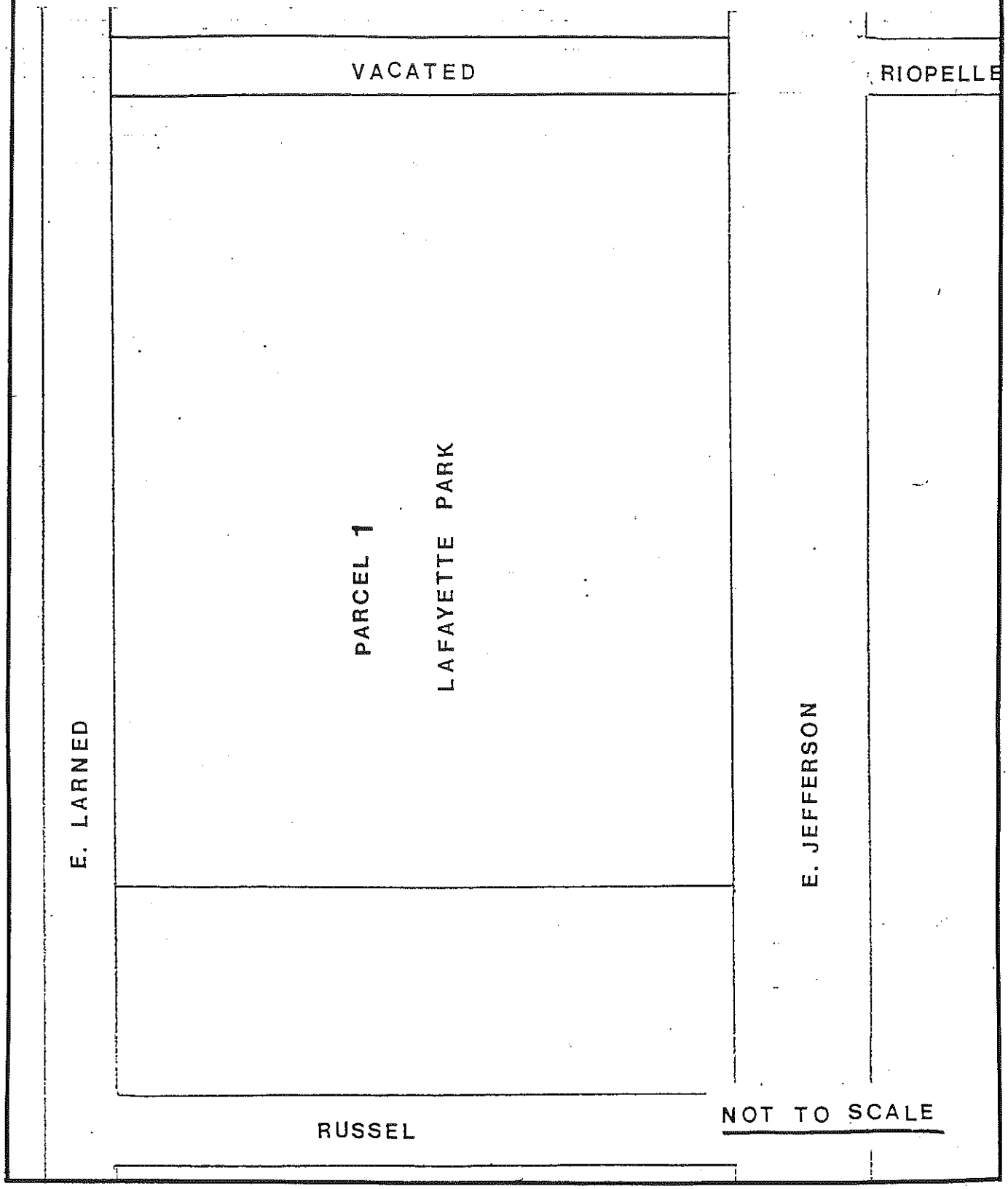
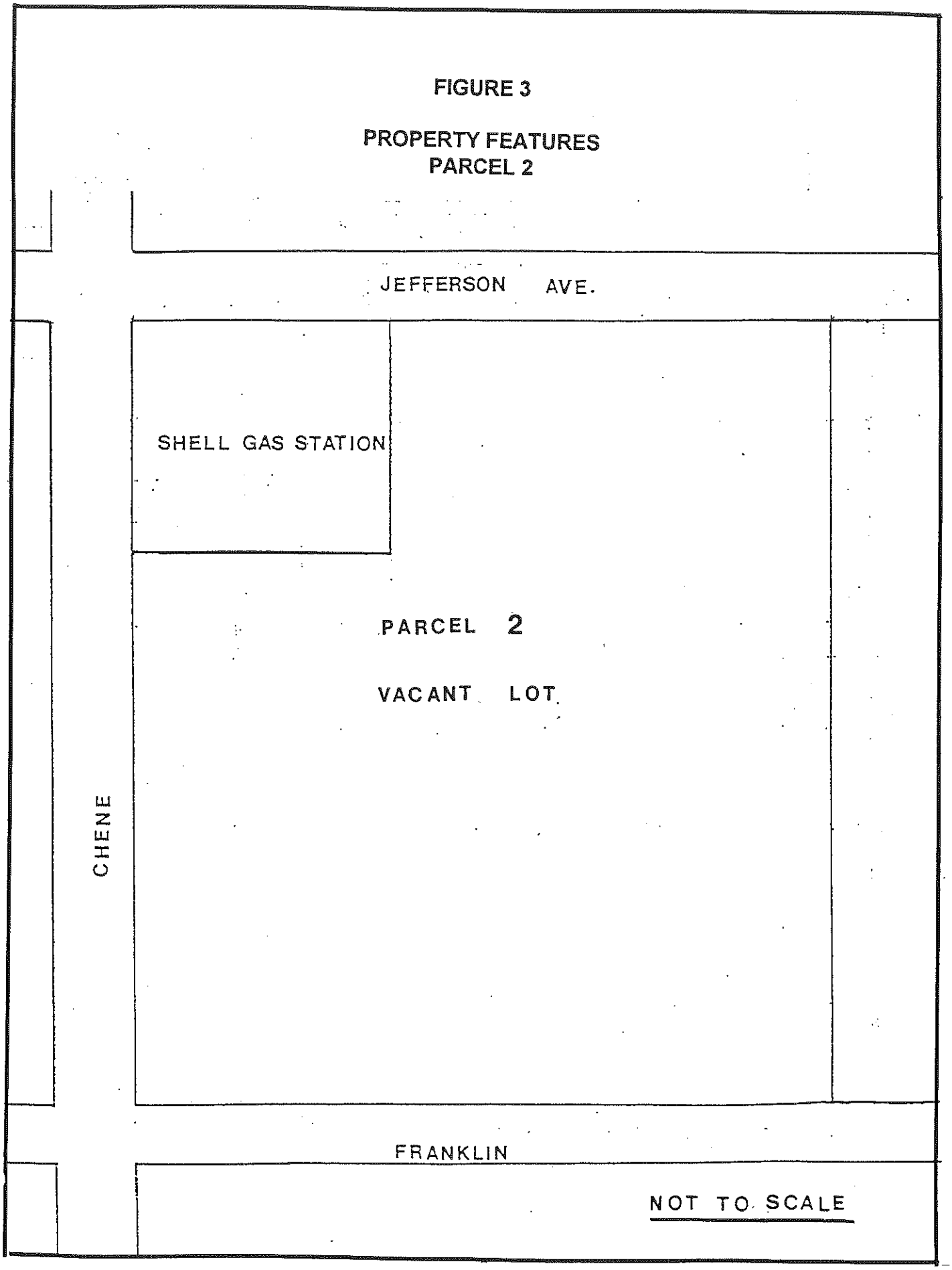


FIGURE 3

PROPERTY FEATURES
PARCEL 2



Sampling Procedures and Results

On November 28, 1995, MDEQ Pre-Remedial Group staff collected surficial soil samples and soil boring samples according to a predetermined grid at the JRJC properties. These samples were collected by the investigation team to determine whether EPA Target Compound List compounds (organic compounds) and Target Analyte List analytes (inorganic compounds) were present at the properties.

Standard MDEQ collection and decontamination procedures, as outlined in the work plan, were adhered to during the collection of all samples. All samples were packaged and shipped in accordance with. EPA required procedures and all EPA quality assurance/quality control procedures were followed. Laboratory analytical data for all the sample analyses are provided in Appendix C.

Surficial Soil Samples

The intent of the surficial soil sampling was to determine the potential for possible contaminant migration from potential source areas and the potential health and safety concerns, if any, associated with the surficial soils at the property. Twenty five (25) surficial soil samples were collected from JRJC properties to characterize any possible contamination on the properties and to determine any direct contact threats posed to nearby residential populations and future workers from these soils.

All surficial soil samples were collected using stainless steel trowels according to the procedures outlined in the work plan. See Figures 4 and 5 for a map showing surficial soil sample locations. For a description of the surficial soil sample locations and the sample characteristics, refer to Table 1. Table 2 presents a summary of the surficial soil and soil boring samples analytical results with comparisons to the Generic Cleanup Criteria of Part 201 of the NREPA.

Soil Boring Samples

The intent of the soil boring sampling was to determine if any downward migration of possible contamination had occurred from potential surficial source areas and to determine the potential health and safety concerns, if any, associated with the deep soils at the properties. Five (5) soil boring samples (SS12, SS13, SS14, SS15 and SS16) were collected from parcel 2. These samples were collected to characterize any possible contamination in the deep soils on the property and to determine any direct contact threats posed to nearby residential populations and future workers.

All soil boring samples were collected utilizing a Geoprobe rig according to the procedures outlined in the work plan. See Figure 6 for a map showing soil boring sample locations. A description of the soil boring sample locations and the sample characteristics can be found in Table 1. Table 2 presents a summary of the soil boring sample analytical results with comparisons to the Generic Cleanup Criteria of Part 201 of the NREPA.

FIGURE 4

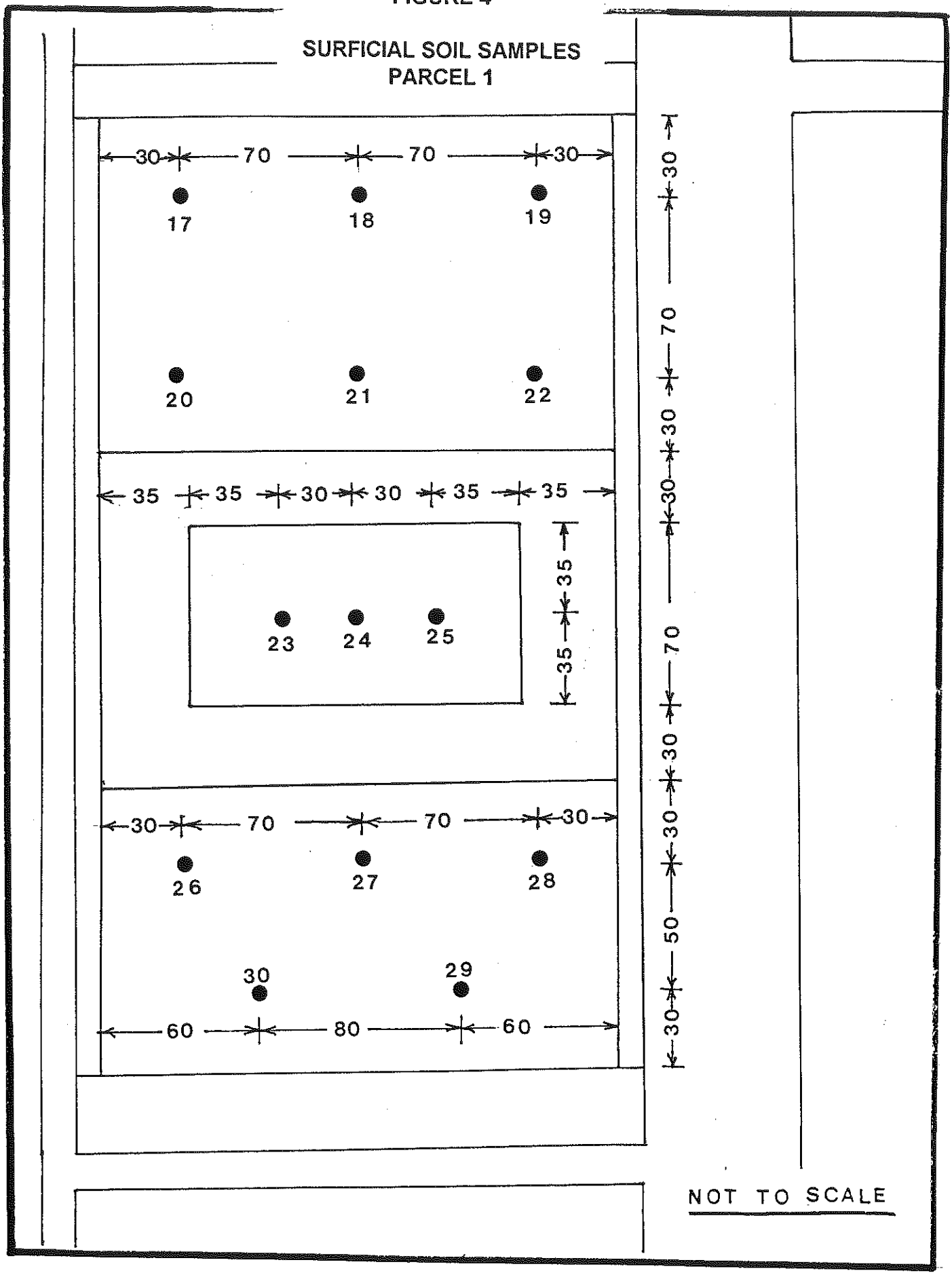

SURFICIAL SOIL SAMPLES
PARCEL 1
30
70
70
30
17
18
19
20
21
22
35
35
30
30
35
35
23
24
25
35
35
30
30
30
30
70
70
30
30
30
30
50
30
26
27
28
30
29
60
80
60
NOT TO SCALE

FIGURE 5

SURFICIAL SOIL SAMPLES
PARCEL 2

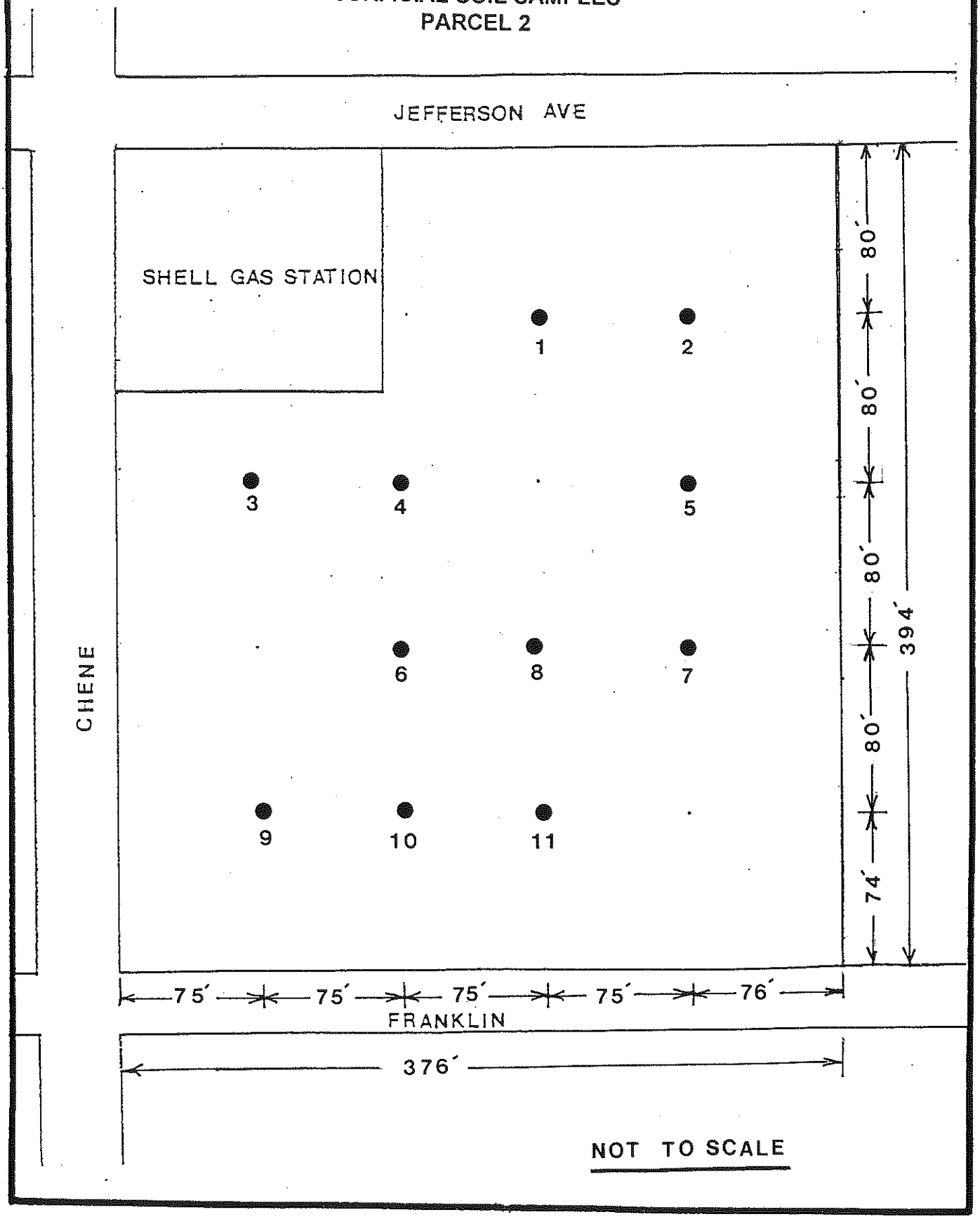


FIGURE 6

SOIL BORING SAMPLES
PARCEL 2

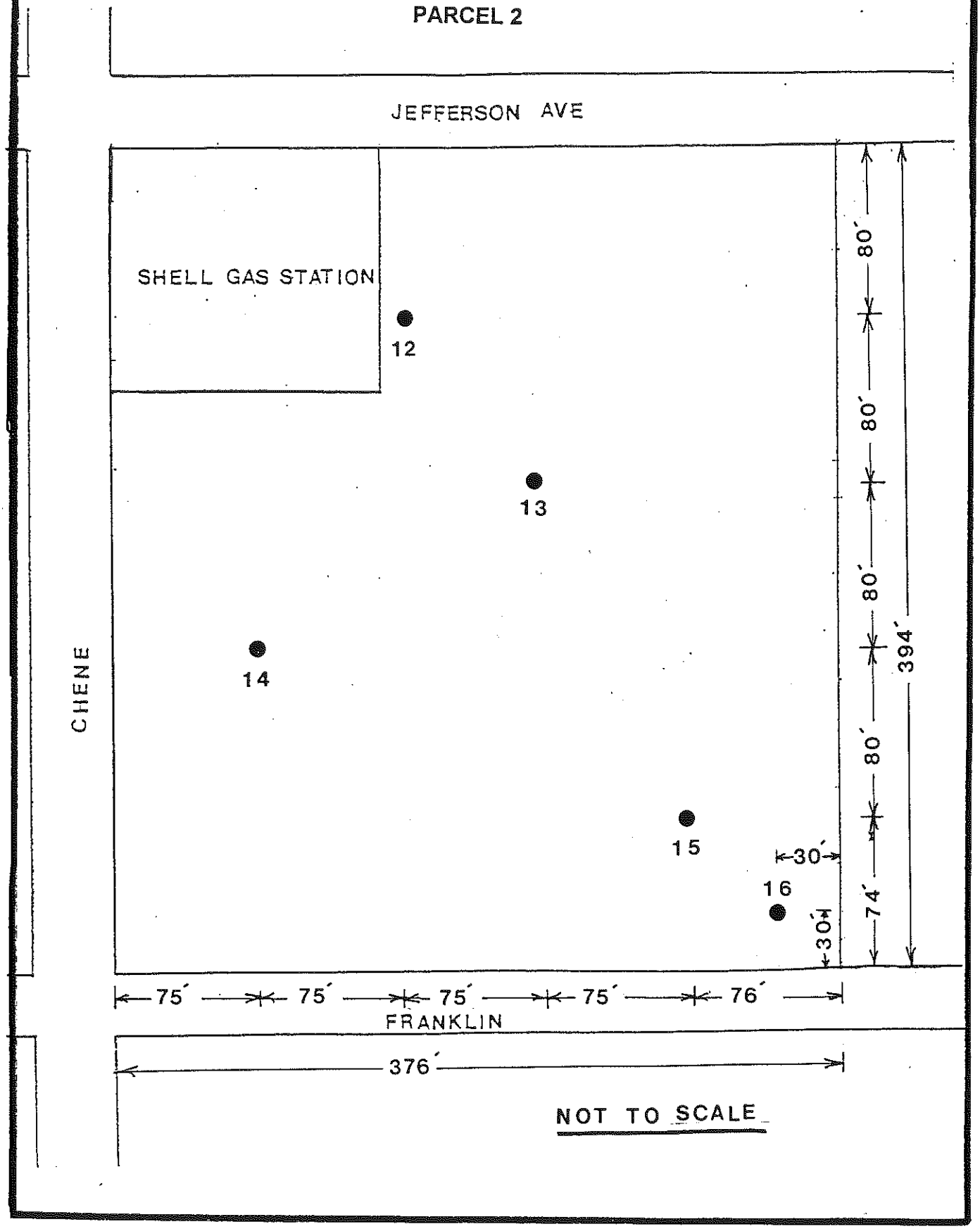


TABLE 1

SOIL SAMPLE DESCRIPTIONS

SAMPLE#	LOCATION	APPEARANCE	DEPTH	DESIGNATION
SS1	See Figure 5	Gray/dark gray, Greenish gray, silty clay w/ gravel, debris	8-12 in	Shallow grab sample
SS2	See Figure 5	Dark gray, fine/med. gravel w/ some sand	0-1 in	Shallow grab sample
SS3	See Figure 5	Gray, moist, silty gravel	0-2 in	Shallow grab sample
SS4	See Figure 5	Brown/gray, silty clay w/ some sand	24-36 in	Deep grab sample
SS5	See Figure 5	Gray, silty clay, w/ gravel	32-36 in	Deep grab sample
SS6	See Figure 5	Gray, brown, silty clay, slightly moist	10-16 in	Shallow grab sample
SS7	See Figure 5	Brown clay, debris, brick, slight water on top of moist clay	12-16 in	Shallow grab sample
SS8	See Figure 5	Gray/brown, moist clay w/ sand and debris	10-30 in	Deep grab sample
SS9	See Figure 5	Moist dark gray to black silty clay w/ traces of sand and gravel	14-22 in	Deep grab sample
SS10	See Figure 5	Light brown silty clay w/ traces of sand and gravel - fill, lots of bricks	10-30 in	Deep grab sample
SS11	See Figure 5	Gray, moist, clay/ gravel	0-3 in	Shallow grab sample

TABLE 1 (CONT.)

SOIL SAMPLE DESCRIPTIONS

SAMPLE#	LOCATION	APPEARANCE	DEPTH	DESIGNATION
SS12	See Figure 6	Tan-gray, sandy clay w/ pebbles, moist dry hole	4-8 ft	Soil boring sample
SS13	See Figure 6	Gray clay w/ sand	4-6 ft	Soil boring sample
SS14	See Figure 6	Tan-orange clay	4-8 ft	Soil boring sample
SS15	See Figure 6	Tan, gray, green clay w/ some gravel, hydrocarbon odor noticed	4-8 ft	Soil boring sample
SS16	See Figure 6	Moist, gray clay w/ some gravel, black sand	4-8 ft	Soil boring sample
SS17	See Figure 4	Dark brown,med. grained soil w/ some pebbles	1-6 in	Shallow grab sample
SS18	See Figure 4	Dark, med. grained soil w/ some small gravel	1-6 in	Shallow grab sample
SS19	See Figure 4	Dark, med. grained soil w/ some gravel	0-3 in	Shallow grab sample
SS20	See Figure 4	Dark, med. grained soil w/ clay	0-24 in	Shallow grab sample
SS21	See Figure 4	Dark, med. grained soil w/ clay, red brick pieces	0-12 in	Shallow grab sample
SS22	See Figure 4	Dark, med. grained soil w/ clay, red brick pieces	0-12 in	Shallow grab sample
SS23	See Figure 4	Dark, med. grained soil	0-3 in	Shallow grab sample

TABLE 1 (CONT.)

SOIL SAMPLE DESCRIPTIONS

SAMPLE#	LOCATION	APPEARANCE	DEPTH	DESIGNATION
SS24	See Figure 4	Dark, med. grained soil w/ some clay	0-6 in	Shallow grab sample
SS25	See Figure 4	Dark, med. grained soil	0-3 in	Shallow grab sample
SS26	See Figure 4	Dark, med. grained soil	0-3 in	Shallow grab sample
SS27	See Figure 4	Dark, med. grained soil w/ clay, red brick pieces	0-6 in	Shallow grab sample
SS28	See Figure 4	Dark, med. grained soil	0-3 in	Shallow grab sample
SS29	See Figure 4	Dark, med. grained soil w/ some clay	0-6 in	Shallow grab sample
SS30	See Figure 4	Dark, med. grained soil w/ some clay	0-6 in	Shallow grab sample

TABLE 2

SOIL SAMPLE SUMMARY

SAMPLE #	CONTAMINANT	SAMPLE CONCENTRATION	PART 201 RESIDENTIAL DIRECT CONTACT CLEANUP CRITERIA	PART 201 INDUSTRIAL DIRECT CONTACT CLEANUP CRITERIA
SS1	*Semi-volatiles*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
	Benzo(a)pyrene	1,500	1,400	21,000
	Inorganics	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	7.3	5.5	83
SS2	*Semi-volatiles*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
	Benzo(a)pyrene	3,800E	1,400	21,000
	Inorganics	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Manganese	15,800	2,000	22,000
SS3	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Manganese	17,500	2,000	22,000
SS4	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	6.5	5.5	83
SS5	No contaminants detected at or above Part 201 criteria in this sample.			
SS6	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	6.8	5.5	83
SS7	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	7.0	5.5	83
	Manganese	3,990	2,000	22,000
SS8	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	5.9	5.5	83

TABLE 2

SOIL SAMPLE SUMMARY (CONT.)

SAMPLE #	CONTAMINANT	SAMPLE CONCENTRATION	PART 201 RESIDENTIAL DIRECT CONTACT CLEANUP CRITERIA	PART 201 INDUSTRIAL DIRECT CONTACT CLEANUP CRITERIA
SS9	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	7.4	5.5	83
SS10	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	7.4	5.5	83
SS11	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Manganese	3,990	2,000	22,000
SS12	No contaminants detected at or above Part 201 criteria in this sample.			
SS13	No contaminants detected at or above Part 201 criteria in this sample.			
SS14	No contaminants detected at or above Part 201 criteria in this sample.			
SS15	No contaminants detected at or above Part 201 criteria in this sample.			
SS16	*Semi-volatiles*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
	Benzo(a)pyrene	1,500	1,400	21,000
SS17	No contaminants detected at or above Part 201 criteria in this sample.			
SS18	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Beryllium	5.6	2.3	35
	Manganese	2,140N	2,000	22,000
SS19	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	6.1N	5.5	83
SS20	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	6.1N	5.5	83

TABLE 2

SOIL SAMPLE SUMMARY (CONT.)

SAMPLE #	CONTAMINANT	SAMPLE CONCENTRATION	PART 201 RESIDENTIAL DIRECT CONTACT CLEANUP CRITERIA	PART 201 INDUSTRIAL DIRECT CONTACT CLEANUP CRITERIA
SS21	*Semi-volatiles*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
	Benzo(a)pyrene	3,400E	1,400	21,000
	Inorganics	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	13.5N	5.5	83
SS22	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	9.4NS	5.5	83
SS23	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	6.6N	5.5	83
SS24	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	6.9N	5.5	83
SS25	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	7.7N	5.5	83
SS26	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	12.6NS	5.5	83
SS27	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	7.5N	5.5	83
	Lead	531	400	400

TABLE 2

SOIL SAMPLE SUMMARY (CONT.)

SAMPLE #	CONTAMINANT	SAMPLE CONCENTRATION	PART 201 RESIDENTIAL DIRECT CONTACT CLEANUP CRITERIA	PART 201 INDUSTRIAL DIRECT CONTACT CLEANUP CRITERIA
SS28	No contaminants detected at or above Part 201 criteria in this sample.			
SS29	No contaminants detected at or above Part 201 criteria in this sample.			
SS30	*Inorganics*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
	Arsenic	5.6N	5.5	83

µg/kg = microgram/kilogram (parts per billion (ppb)).
mg/kg = milligram/kilogram (parts per million (ppm)).

A total of twenty five (25) surficial soil and five (5) soil boring samples were collected during the BFRA.

Metal Detection Survey

A metal detector was used to survey each deep soil sample location before using the Geoprobe unit. Metal detectors, unlike magnetometers, work on both ferrous and non-ferrous metals; magnetometers only work on ferrous metals. Metal detectors have a relatively short detection range. Metal detectors are limited in depth of penetration and will detect all types of metals. A metal detector responds to the electrical conductivity of metal targets, which is relatively high compared to normal soil conductivities. Small metal objects, like spray cans, can be detected at a distance of about one meter. Because the response of a detector increases with the target's surface area, larger objects, like 55-gallon drums, may be detected at depths of 1-3 meters. Massive piles of metal may be detected at depths up to 3-6 meters. Metal detectors are limited in depth of penetration and will detect all types of metals. No significant metallic responses typical of 55-gallon drums or underground storage tanks were detected at any of the deep soil sample locations.

DISCUSSION

Analysis of the soil samples collected from parcel 1 during the BFRA detected the presence of benzo (a) pyrene, 3,400 ug/kg; arsenic, 5.6-13.5 mg/kg; lead, 531 mg/kg; and manganese, 2,140 mg/kg. These contaminants of concern were detected at concentrations greater than the Generic Residential Cleanup Criteria of Part 201 of the NREPA. Because these contaminants were detected at concentrations in excess of the Generic Residential Cleanup Criteria, parcel 1 of the JRJC properties qualifies as a facility under Part 201. The concentrations of lead were also found to be greater than the Generic Industrial Cleanup Criteria of Part 201 of the NREPA.

Analysis of the soil and soil boring samples collected from parcel 2 during the BFRA, detected the presence of benzo (a) pyrene, 3,800 ug/kg; arsenic, 5.9-7.4 mg/kg; and manganese, 17,500 mg/kg. These contaminants of concern were detected at concentrations greater than the Generic Residential Cleanup Criteria of Part 201 of the NREPA. Because these contaminants were detected at concentrations in excess of the Generic Residential Cleanup criteria, parcel 2 of the JRJC properties qualifies as a facility under Part 201. No contaminants were detected at concentration greater than the Generic Industrial Cleanup Criteria of Part 201 of the NREPA.

Based on the concentration of the contaminants in the soils of the properties, there is little potential for exposure to contaminants at the properties under their current or anticipated future use.

Based on the findings of the BFRA investigation and the MDCH Health Consultation Assessment, the following issues should be addressed before or during the redevelopment of the JRJC properties.

- The presence of lead above the Industrial Cleanup Criteria at the Jefferson/Riopelle property (parcel 1) should be confirmed and measures should be taken to prevent worker exposure during property redevelopment.

- Excavation for the construction of any buildings on the properties might expose workers or subsequent occupants to subsurface soils. Therefore, soil samples should be collected and analyzed from borings to the depth of any proposed excavation on the properties before the excavation begins. These results should be compared to the Generic Industrial Cleanup Criteria for Direct Contact to soils to determine whether any exposure risk to site workers could occur.

BIBLIOGRAPHY

1. Michigan Department of Environmental Quality, Environmental Response Division, Superfund Section, Pre-Remedial Site Files, Jefferson/Riopelle-Jefferson/Chene.

2. Michigan Department of Community Health, Health Consultation for Jefferson/Riopelle-Jefferson/Chene

APPENDIX A

BFRA PROPERTY PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 8 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1530

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-8

DESCRIPTION: Photo of Soil Sample eight.

DATE: 11/28/95

TIME: 1530

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-8

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 1 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1145

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-1

DESCRIPTION: Photo of Soil Sample one.

DATE: 11/28/95

TIME: 1145

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-1

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 2 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1130

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-2

DESCRIPTION: Photo of Soil Sample two.

DATE: 11/28/95

TIME: 1130

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-2

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 3 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1220

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-3

DESCRIPTION:
Photo of Soil Sample three.

DATE: 11/28/95

TIME: 1220

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-3

DESCRIPTION:
Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 4 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1245

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-4

DESCRIPTION: Photo of Soil Sample four.

DATE: 11/28/95

TIME: 1245

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-4

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 5 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1430

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-5

DESCRIPTION: Photo of Soil Sample five.

DATE: 11/28/95

TIME: 1430

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-5

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 6 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1345

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-6

DESCRIPTION: Photo of Soil Sample six.

DATE: 11/28/95

TIME: 1345

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-6

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 7 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1505

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-7

DESCRIPTION: Photo of Soil Sample seven.

DATE: 11/28/95

TIME: 1505

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-7

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 9 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1555

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Dusk, and clear

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-9

DESCRIPTION: Photo of Soil Sample nine.

DATE: 11/28/95

TIME: 1555

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Dusk, and clear

TEMPERATURE: 35 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-9

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 10 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1620

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Dusk, and clear

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-10

DESCRIPTION: Photo of Soil Sample ten.

DATE: 11/28/95

TIME: 1620

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Dusk, and clear

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-10

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 11 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1615

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Dusk, and clear

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-11

DESCRIPTION: Photo of Soil Sample eleven.

DATE: 11/28/95

TIME: 1615

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Dusk, and clear

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-11

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 12 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1550

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Sunny

TEMPERATURE: 32 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-12

DESCRIPTION: Photo of Soil Sample twelve.

DATE: 11/28/95

TIME: 1550

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Sunny

TEMPERATURE: 32 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: SS-12

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 13 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1500

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: Sunny and cold

TEMPERATURE: 30 F

PHOTOGRAPH BY: Ducsay

SAMPLE ID: SS-13

DESCRIPTION: Photo of Soil Sample thirteen.

DATE: 11/28/95

TIME: 1500

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: Sunny and cool

TEMPERATURE: 30 F

PHOTOGRAPH BY: Ducsay

SAMPLE ID: SS-13

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 14 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1515

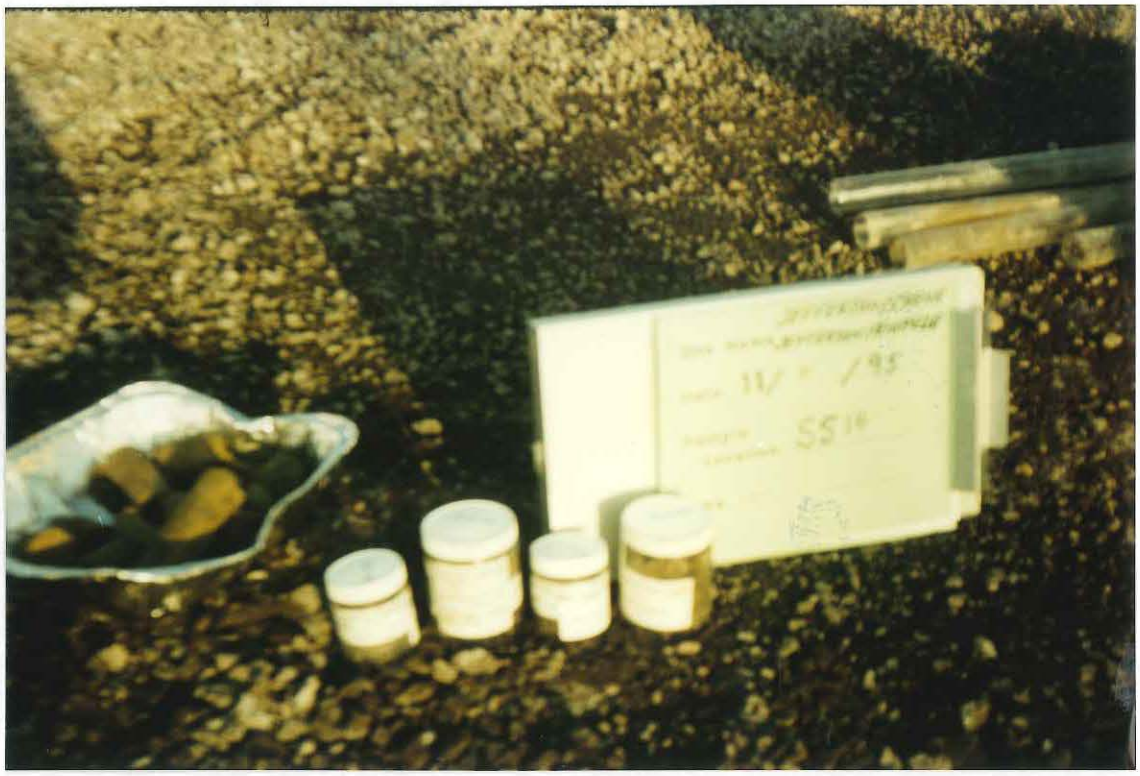
DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Sunny and cool

TEMPERATURE: 32 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-14



DESCRIPTION: Photo of Soil Sample fourteen.

DATE: 11/28/95

TIME: 1515

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Sunny and cool

TEMPERATURE: 32 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-14

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 15 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1630

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Sunny

TEMPERATURE: 32 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-15

DESCRIPTION: Photo of Soil Sample fifteen.

DATE: 11/28/95

TIME: 1630

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Sunny

TEMPERATURE: 32 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-15

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 16 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1210

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 28 F

PHOTOGRAPH BY: Nabil

SAMPLE ID: SS-16

DESCRIPTION: Photo of Soil Sample sixteen.

DATE: 11/28/95

TIME: 1210

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 28 F

PHOTOGRAPH BY: Nabil

SAMPLE ID: SS-16

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 17 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1100

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-17

DESCRIPTION: Photo of Soil Sample seventeen.

DATE: 11/28/95

TIME: 1100

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-17

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 18 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1110

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-18

DESCRIPTION: Photo of Soil Sample eighteen

DATE: 11/28/95

TIME: 1110

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-18

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 19 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1145

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-19

DESCRIPTION: Photo of Soil Sample nineteen.

DATE: 11/28/95

TIME: 1145

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-19

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 20 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1155

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-20

DESCRIPTION: Photo of Soil Sample twenty.

DATE: 11/28/95

TIME: 1155

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-20

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 21 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1205

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-21

DESCRIPTION: Photo of Soil Sample twenty-one.

DATE: 11/28/95

TIME: 1205

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-21

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 22 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1220

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-22

DESCRIPTION: Photo of Soil Sample twenty-two.

DATE: 11/28/95

TIME: 1220

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Chavez

SAMPLE ID: SS-22

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 23 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1325

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-23

DESCRIPTION: Photo of Soil Sample twenty-three.

DATE: 11/28/95

TIME: 1325

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-23

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 24 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1340

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-24

DESCRIPTION: Photo of Soil Sample twenty-four.

DATE: 11/28/95

TIME: 1340

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-24

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 25 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1400

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-25

DESCRIPTION: Photo of Soil Sample twenty-five.

DATE: 11/28/95

TIME: 1400

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-25

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 26 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1445

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-26

DESCRIPTION: Photo of Soil Sample twenty-six.

DATE: 11/28/95

TIME: 1445

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-26

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 27 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1500

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-27

DESCRIPTION: Photo of Soil Sample twenty-seven.

DATE: 11/28/95

TIME: 1500

DIRECTION OF PHOTOGRAPH: N/A

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-27

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 28 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: 1525

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-28

DESCRIPTION: Photo of Soil Sample twenty-eight.

DATE: 11/28/95

TIME: 1525

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-28

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 29 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1615

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-29

DESCRIPTION: Photo of Soil Sample twenty-nine.

DATE: 11/28/95

TIME: 1615

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-29

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 30 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: 1555

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-30

DESCRIPTION: Photo of Soil Sample thirty.

DATE: 11/28/95

TIME: 1555

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly sunny, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: SS-30

DESCRIPTION: Long view of sample location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 31 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: N/A

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: N/A

DESCRIPTION: NW view of Jefferson/Riopelle property.

DATE: 11/28/95

TIME: N/A

DIRECTION OF PHOTOGRAPH: N

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Fairbanks

SAMPLE ID: N/A

DESCRIPTION: N view of Jefferson/Riopelle property.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: JEFFERSON/CHENE-JEFFERSON/RIOPELLE PAGE: 32 OF: 33

U.S. EPA ID #: MIB000000002

DATE: 11/28/95

TIME: N/A

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: N/A

DESCRIPTION: Photo of NE corner of Jefferson.

DATE: 11/28/95

TIME: N/A

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: N/A

DESCRIPTION: Photo of the SW view of Jefferson/Chene property..

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: **JEFFERSON/CHENE-JEFFERSON/RIOPELLE** PAGE: 33 OF: 33

U.S. EPA ID #: **MIB000000002**

DATE: 11/28/95

TIME: N/A

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: N/A

DESCRIPTION: Photo of Shell Gas Station on Jefferson/Chene proprety.

DATE: 11/28/95

TIME: N/A

DIRECTION OF PHOTOGRAPH: NW

WEATHER CONDITIONS: Partly cloudy, and cool.

TEMPERATURE: 30 F

PHOTOGRAPH BY: Sakowski

SAMPLE ID: N/A

DESCRIPTION: Photo of Shell Gas Station on Jefferson/Chene property..

APPENDIX B

MDCH HEALTH CONSULTATION REPORT

HEALTH CONSULTATION

JEFFERSON-RIOPELLE/JEFFERSON-CHENE

DETROIT, WAYNE COUNTY, MICHIGAN

prepared by

Michigan Department of Community Health (MDCH)
Under a Cooperative Agreement with
Agency for Toxic Substances and Disease Registry (ATSDR)

BACKGROUND AND STATEMENT OF ISSUES

The Michigan Department of Environmental Quality (MDEQ) has asked the Michigan Department of Community Health (MDCH) to evaluate the health risks associated with the Jefferson-Riopelle/Jefferson-Chene properties as part of the Detroit Brownfields Pilot Project.

The Jefferson-Riopelle/Jefferson-Chene properties consist of two parcels in Detroit, Michigan, one between East Jefferson Avenue and East Larned Avenue west of the vacated Riopelle Street (Parcel 1, or Jefferson-Riopelle), the other between East Jefferson Avenue and East Franklin Street east of Chene Street (Parcel 2, or Jefferson-Chene) (see Figure 1).

Parcel 1 historically was used primarily for residential housing, with some small businesses interspersed. In 1922, there was a hog farm in the southeast corner of the parcel. By 1951, the hog farm had been replaced by a plating operation and a garage. The City of Detroit acquired the land through condemnation proceedings in 1960 (1). Currently the parcel is open land, used as a park. Adjacent to the parcel on the west is a YMCA building, on the east, multi-family housing. Reportedly, it has been proposed to construct a small shopping mall on the parcel (2).

In 1897, the north part of Parcel 2 was used for residential housing, and the southwest section housed a coal-gas plant. In about 1916, the gas plant was replaced by a metal-working factory. By 1969, this had been taken over by the City of Detroit Department of Public Works (DPW) for a maintenance building, and the DPW had constructed a garage on the rest of the parcel. The DPW used the facility until the late 1970s, and they demolished it in the mid-1980s (1). The parcel is currently used as a parking lot, and there is no proposal to change this. There is a gasoline station in the southeast corner of the intersection of Jefferson Avenue and Chene Street, and Parcel 2 is adjacent to the station property on both the south and east sides.

On November 28, 1995, the MDEQ collected 14 soil samples from Parcel 1 (9 surface [0-3 or 0-6 inches deep] and 5 shallow subsurface [0-12, 0-24, or 1-6 inches deep]) and 16 soil samples (3 surface [0-1, 0-2, and 0-3 inches deep], 6 shallow subsurface [from 8-12 to 10-30 and 14-22 inches deep] and 7 deep [from 2 to 8 feet deep]) from Parcel 2 (3).

DISCUSSION

Parcel 1 is a public park with adjacent residential properties. Although the maximum arsenic, benzo(a)pyrene, lead, and manganese concentrations in soil from Parcel 1 (Table 1) exceeded the MDEQ's clean-up levels for residential areas (4), the area poses no imminent or long-term health hazard. No one is likely to be exposed enough of the contaminants of concern from the soil on the parcel by ingestion, dermal contact, or inhalation to incur adverse health effects

(5, 6, 7, 8). The parcel is covered by lawn, well-maintained, which reduces the likelihood of exposure to dust containing contaminants of concern from the soil.

Even though the arsenic concentrations in 9 of the 14 samples from Parcel 1 exceeded the clean-up levels, none exceeded the range found in background clay samples typical of southeastern Michigan (9). The lead concentrations in 2 of the 14 samples from Parcel 1 exceeded the residential clean-up level, the average concentration in all 14 samples was 230 ppm. The sample from Parcel 1 with the highest lead concentration also was the only sample from the parcel that contained a manganese concentration above the residential clean-up level. The one sample from Parcel 1 that contained a benzo(a)pyrene concentration above the residential clean-up level also contained the highest arsenic concentration. Neither lead nor manganese was above the clean-up levels in that sample.

Only the lead concentrations in the soil from Parcel 1 exceed the MDEQ's generic clean-up levels for commercial or industrial areas (10). The MDEQ clean-up levels for lead in commercial/industrial areas are the same as the residential levels, developed using the U.S. EPA Integrated Uptake Biokinetic Model for children. No risk assessment methods are currently available to evaluate lead toxicity in adults.

Parcel 2 is a parking lot in a commercial area. The concentrations of chemicals in the soil on the parcel (Table 2) do not pose any imminent or long-term health hazard. No adult is likely to incidentally ingest an amount of the contaminants of concern from the soil in the parcel that would pose any health concern. None of the concentrations of contaminants of concern in soil samples from Parcel 2 exceed the MDEQ's clean-up levels for commercial or industrial areas (10).

The concentrations of polycyclic aromatic hydrocarbons (PAHs)[1] and lead found in the soil samples from either parcel are within the range of concentrations found in background urban soils (Reference 5, Table 5-3; Reference 6).

Excavation for foundations or basements of the shopping mall proposed for Parcel 1 would expose workers and might expose passers-by and area residents to sub-surface soil from the parcel. The available data on soil contamination in this parcel is from samples of the top 24 inches of soil. There is no information available on contamination in deeper sub-surface soil from the parcel.

---

[1] benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, pyrene

CONCLUSIONS

The two Jefferson-Riopelle/Jefferson-Chene properties do not pose any health hazard, either imminent or long-term, under their current use, a public park and a parking lot, respectively. The surface soil on the Jefferson-Riopelle property would not pose any health hazard in the proposed use as a shopping mall. However, excavation for the construction of the mall might expose sub-surface soils, and there is no information available on contamination in sub-surface soils below 2 feet in depth.

RECOMMENDATIONS

Soil samples from borings to the depth of any proposed excavation on the properties should be collected and analyzed before the excavation begins. The excavation should be conducted so as to minimize any health threat to the workers and the surrounding community.

New environmental data or information may require future health consultations concerning the future use of this property. Similarly, changes to the proposed use of the property may require additional investigation and further health consultations.

REFERENCES

1. Michigan Department of Natural Resources. Jefferson-Riopelle/Jefferson-Chene Project Area. undated, (1990s).

2. Fairbanks, C., MDEQ. Personal communication. May 13, 1996.

3. Michigan Department of Environmental Quality. Unpublished laboratory results. December 1995.

4. Howard, A.J., MDNR[2] ERD. Memorandum to ERD staff, Subject: Interim Environmental Response Division Operational Memorandum #8, Revision 4: Generic Residential Cleanup Criteria. June 5, 1995.

5. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Polycyclic Aromatic Hydrocarbons, Update. August 1995.

6. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Lead, Update. ATSDR/TP-92/12. April 1993.

7. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Arsenic, Update. ATSDR/TP-92/02. April 1993.

8. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Manganese. ATSDR/TP-91/19. July 1992.

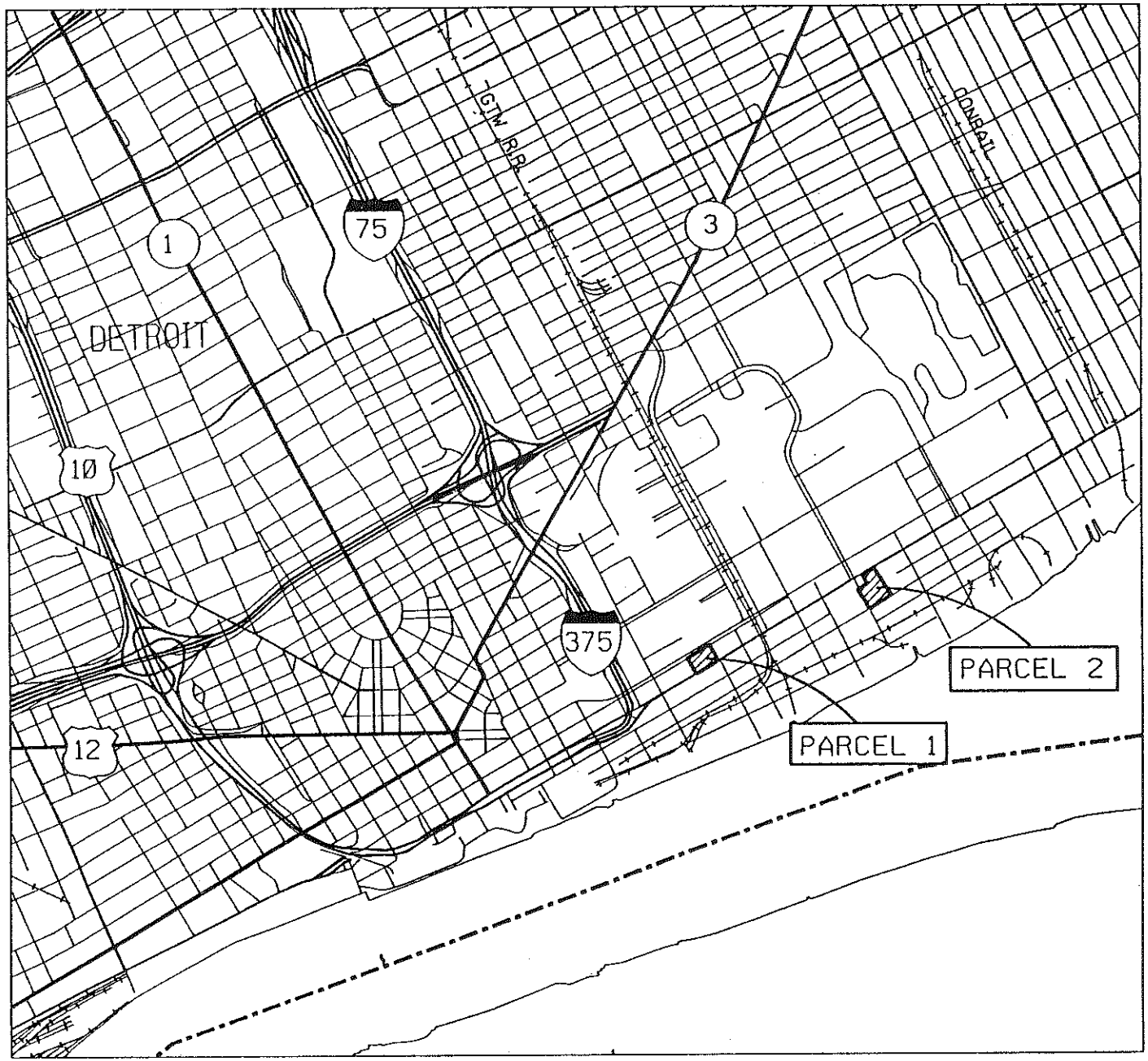
9. Michigan Department of Natural Resources, Waste Management Division. Michigan Background Soil Survey. Revised April 1991.

10. Howard, A.J., MDNR ERD. Memorandum to ERD staff, subject: Environmental Response Division Operational Memorandum #14 Revision 2: Remedial Action Plans Using Generic Industrial or Generic Commercial Cleanup Criteria or Other Requirements. June 6, 1995.

---

[2] On October 1, 1995, the environmental evaluation, regulatory, and enforcement functions of the Michigan Department of Natural Resources (MDNR) were transferred to the newly-formed Michigan Department of Environmental Quality (MDEQ).

Figure 1.



JEFFERSON/CHENE/RIOPELLE PROPERTIES

SITE LOCATION

- INTERSTATE HIGHWAYS (496)
- U.S. HIGHWAYS (2)
- STATE HIGHWAYS (55)
- OTHER MAJOR ROADS
- MINOR ROADS
- TWO-TRACK ROADS
- AIRPORTS
- GRASS AIRSTRIPS
- RAILROADS
- ABANDONED RAILROADS
- RIVERS AND STREAMS
- INTERMITTENT STREAMS
- POLITICAL BOUNDARIES
- PROPERTIES

N

MILES

0 0.5 1

Michigan Department of Public Health

Base map information provided by Michigan Department of Natural Resources, MIRIS Program

4/17/96

PREPARERS OF REPORT

Michigan Department of Community Health

John Filpus, Environmental Engineer

Brendan Boyle, Program Manager

Robin Freer, Resource Specialist

James Bedford, Environmental Toxicologist

John Hesse, Principal Investigator

ATSDR Regional Representative

Louise Fabinski
Regional Services, Region V
Office of the Assistant Administrator

ATSDR Technical Project Officer

William Greim
Division of Health Assessment and Consultation
Superfund Site Assessment Branch

Table 1. Concentrations of contaminants of concern found in soil samples collected from the Jefferson-Riopelle property, November 1995.

Chemical	Maximum Concentration (ppm)	
	surface	shallow sub-surface
antimony	7.4J	7.2J
arsenic	7.7	13.5
barium	516	256
benzo(a)anthracene	1.2	3.8
benzo(a)pyrene	1.1	3.4
benzo(b)fluoranthene	1.3	3.8
benzo(g,h,i)perylene	0.69	1.8
benzo(k)fluoranthene	1.1	1.6
beryllium	5.6	1.1J
cadmium	0.77J	1.3
carbazole	0.22J	0.59
chromium	25.9	27.5
chrysene	1.3	4.0
cobalt	7.4J	7.1J
copper	118	219
dibenzo(a,h)anthracene	0.32J	0.92
dibenzofuran	ND (0.39)	0.48
indeno(1,2,3-c,d)pyrene	1.1	2.4
lead	531	674
manganese	392	2,140
mercury	0.35	0.46
2-methylnaphthalene	ND (0.39)	0.28J
naphthalene	ND (0.39)	0.34J
phenanthrene	1.8	5.8
thallium	0.63J	0.48J
vanadium	31	36.3
zinc	639	263

Reference: 3

ND — Not Detected
J — Estimated Value

Table 2. Concentrations of contaminants of concern found in soil samples collected from the Jefferson-Chene property, November 1995.

Chemical	Maximum Concentration (ppm)		
	surface	shallow subsurface	deep
antimony	27.5	8.0J	7.2J
arsenic	1.4J	7.4	6.5
barium	193	247	123
benzo(a)anthracene	4.7	1.6	1.9
benzo(a)pyrene	3.8	1.5	1.5
benzo(b)fluoranthene	4.8	1.6	1.6
benzo(g,h,i)perylene	1.9	0.9	0.82
benzo(k)fluoranthene	1.7	0.98	0.96
beryllium	0.63J	1.1J	0.98J
cadmium	ND (0.62)	0.64J	0.64J
carbazole	1.4	0.27J	0.61
chromium	1,050	245	32.1
chrysene	4.9	1.8	2.0
cobalt	1.8J	5.7J	12
copper	40.7	163	34.5
dibenzo(a,h)anthracene	1.1	0.35J	0.23J
dibenzofuran	0.36J	ND (0.43)	0.39J
indeno(1,2,3-c,d)pyrene	2.7	1.1	1.1
lead	40.4	138	68.9
manganese	17,500	3,990	561
mercury	ND (0.04)	0.14	0.1
phenanthrene	7.5	2.4	4.5
thallium	1.2J	1.5J	0.91J
toluene	ND (0.011)	ND (0.011)	41
vanadium	561	97.9	45.5
xylenes (total)	ND (0.011)	ND (0.011)	600
zinc	350	152	86.2

Reference: 3

ND — Not Detected
J — Estimated Value

CERTIFICATION

The Jefferson-Riopelle/Jefferson-Chene Health Consultation was prepared by the Michigan Department of Community Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.

William Sheen

Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this Health Consultation and concurs with its findings.

William Sheen for REG

Chief, SSAB, DHAC, ATSDR

APPENDIX C

CHEMICAL ANALYSIS OF BFRA DATA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on Jan 16, 1996

FROM: Stephen L. Ostrodka, Chief (HSRL-5J)
Superfund Technical Support Section

TO: Data User: MDNR Patricia J Scott for Steve Ostrodka 01/25/94

We have reviewed the data for the following case:

SITE NAME: Jefferson/Chene (MI)

CASE NUMBER: 24259 SDG NUMBER: EASS1

Number and Type of Samples: ~~19~~ 20 (Soil)

Sample Numbers: EASS1-9, EAST0-9, EASW10

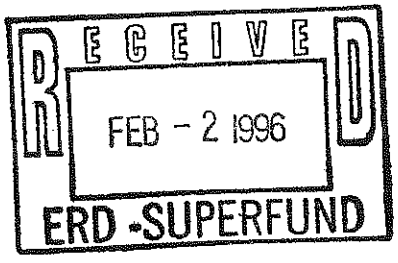
Laboratory: ARI Hrs. for Review: 26+2=28 was

Following are our findings:

The data are acceptable and usable with the qualifications described in the attached narrative.

Patricia J Scott

cc: Regional TPO
Brian Freeman
HSMC-5J



NARRATIVE

CASE: 24259
SDG# EASS1
LABORATORY: Analytical Resources, Inc.
SITE: Jefferson/Chene (MI)

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

This review covers twenty soil samples (EASS1 through EASS9, EAST0 through EAST9 and EASW0) for complete organic analysis at low levels except for the volatile fraction of EAST5, which required medium level analysis due to very high levels substituted benzenes (particularly xylene). All samples were collected on 11/28/95 and were received by the lab on 11/29/95.

The reviewer's narrative and data qualifiers follow.

Reviewed by: Al Venuto (Lockheed/ESAT)
Date: 24 January 1996

NARRATIVE

CASE: 24259
SDG# EASS1
LABORATORY: Analytical Resources, Inc.
SITE: Jefferson/Chene (MI)

1. Holding Times:

All samples were analyzed for volatiles well within the fourteen day holding time from date of sampling for soils.

All samples were extracted for semi-volatiles and pesticides/-PCBs well within the fourteen day holding times for soils; all extracts were promptly analyzed.

2. GC/MS Tuning and GC Instrument Performance:

The GC/MS tunings and mass calibrations were all within the required Q.C. limits. All pesticide breakdown results were only a small fraction of the maximum permissible limits. All pesticide resolution checks were satisfactory.

3. Calibration:

The few calibration outliers for all fractions are listed on the outliers forms. All RPDs in the pesticide calibration verification summaries were well below the maximum permissible 25%.

4. Method Blanks:

Neither of the low level volatile method blanks contained any target compounds, but VBLK51 contained two TICs while VBLK52 contained four; the earliest-eluting compound in both was identified as hexane, while the others were identified as siloxanes. Any TIC found in the method blank was almost always found in its associated samples. The medium level volatile method blank contained only the common contaminant acetone plus a single TIC identified as hexane; neither of these was found in its associated samples.

The semi-volatile method blank contained no target compounds, but did contain three TICs; no samples contained the first two, but a majority contained the latest-eluting TIC.

The pesticide method blank contained no target compounds.

Reviewed by: Al Venuto (Lockheed/ESAT)
Date: 24 January 1996

NARRATIVE

CASE: 24259
SDG# EASS1
LABORATORY: Analytical Resources, Inc.
SITE: Jefferson/Chene (MI)

Target analytes and TICs found in both the sample and the associated method blank, and therefore flagged "B" by the lab, are further flagged "U" by the reviewer if the analytes are present in the sample at no more than five times (or ten times for common contaminants) the amount in the method blank. If the value is less than CRQL, it is deleted and raised to CRQL by the reviewer.

5. Surrogate Recoveries:

All low and medium level volatile surrogate recoveries were well within the Q.C. limits.

All semi-volatile surrogate recoveries were well within the Q.C. limits.

For the pesticide fraction, the recoveries of tetrachloro-*m*-xylene (TCX) were slightly below the lower limit on column 1 only for EASS7 and EAST9; the recoveries of decachlorobiphenyl (DCB) were slightly below the lower limit on column 1 only for EASS3, EAST7DL, EAST9 and EASS1MS, and slightly above the upper limit on column 2 only for EASS2. The pesticide result for these samples should therefore be considered J, estimated, for positive values or UJ, estimated quantitation limits, for non-detects with the following exceptions: quantitation limits for EASS2 need not be qualified, and no results for EAST7DL and EASS1MS need be qualified because the recoveries in the undiluted or unspiked analyses were satisfactory.

6. Matrix Spikes and Matrix Spike Duplicates:

Sample EASS2 was chosen for matrix spiking for the low level volatile fraction; all MS and MSD recoveries and RPDs were well within the Q.C. limits. Sample EAST5 was necessarily chosen for the medium level since this was the only sample analyzed at this level. All MS and MSD recoveries and RPDs were within the Q.C. limits except those for toluene, which exhibited great variation. Since this compound was found in the unspiked sample, the result for toluene in EAST5 should be considered J, estimated.

Reviewed by: Al Venuto (Lockheed/ESAT)
Date: 24 January 1996

NARRATIVE

CASE: 24259
SDG# EASS1
LABORATORY: Analytical Resources, Inc.
SITE: Jefferson/Chene (MI)

Sample EASS1 was chosen for matrix spiking for both the semi-volatile and pesticide/PCB fractions. The recovery of phenol was above the upper limit for the semi-volatile fraction of EASS1MS while those for 4-chloro-3-methylphenol, 4-nitrophenol and 2,4-dinitrotoluene were above the upper limits and those for pentachlorophenol were zero in both EASS1MS and EASS1MSD; all RPDs were satisfactory. Since none of these compounds was found in the unspiked sample, the results need not be qualified except that for pentachlorophenol, where the result in EASS2 should be considered R, unusable.

All pesticide MS and MSD recoveries and RPDs were well within the Q.C. limits.

7. Field Duplicates and Field Blanks:

No samples in this case were identified as field duplicates or field blanks.

8. Internal Standards Performance:

All volatile IS areas were well within the Q.C. limits.

All semi-volatile IS areas were within the Q.C. limits except for 1,4-dichlorobenzene-d_4 (IS#1) in EASS8RE, which was slightly above the upper limit; since no compounds requiring quantitation on IS#1 were present in this sample, no action is recommended.

9. Compound Identification:

The compound identifications for all fractions appear to be satisfactory.

10. Compound Quantitation and Reported Detection Limits:

The correct limits were used and the proper adjustments were made for sample size, percent moisture, level and dilutions.

11. System Performance:

All aspects of the system performance appear to be satisfactory.

Reviewed by: Al Venuto (Lockheed/ESAT)
Date: 24 January 1996

NARRATIVE

CASE: 24259
SDG# EASS1
LABORATORY: Analytical Resources, Inc.
SITE: Jefferson/Chene (MI)

12. Additional Case-Specific Problems:

The volatile fraction of EASS9 was reanalyzed at an effective dilution (smaller sample size) because the value for acetone exceeded the calibration range. Only the value for acetone should be taken from the EASS9DL analysis; for all other compounds, the results from the initial analysis should be used.

The semi-volatile fractions of EASS8 and EAST1 were reanalyzed because very early-eluting peaks caused surrogate retention time shifts (particularly for 2-fluorophenol). This was also noted in the reanalyzed samples, thus demonstrating a matrix effect. Since none of the analytes is affected, it is recommended that the results from the initial analyses be used without qualification.

The semi-volatile fractions of EASS2 and EAST6 were reanalyzed because the values for several target compounds in each exceeded the calibration ranges. Only the values for those compounds which exceeded the calibration ranges should be taken from the corresponding diluted analyses; for all other compounds, the results from the initial analyses should be used.

The pesticide fraction of EAST7 was reanalyzed at a 1:5 dilution because the value for DDT in the initial analysis exceeded the calibration range. Only the value for DDT should be taken from the EAST7DL analysis; for all other analytes, the results from the initial analysis should be used.

Also for the pesticide fraction, one or more analytes in a number of samples were flagged "P" because the difference on the two columns exceeded 25%; the results for such analytes in the affected samples should therefore be considered J, estimated.

Reviewed by: Al Venuto (Lockheed/ESAT)
Date: 24 January 1996